

thin, delicate skin that are prone to growth cracks (Figure 53). Besides being unappealing to the customer, these cracks provide infection sites for soilborne pathogens. Additionally, heavy rains that saturate soil for more than a few hours can cause root asphyxiation. Water-saturated soil allows carbon dioxide to accumulate in the roots, a condition that may also be accompanied by a depletion of oxygen. Asphyxiation can happen at any time, but it is more likely to occur during warm periods, especially if the vines have been removed before harvest. Sweetpotatoes that have been asphyxiated may appear healthy for several days or weeks, but if injury was severe, the roots will die and begin decomposing in storage. The first indication of a problem may include the lack of exuding latex from the vascular ring of a cut sweetpotato (Figures 2 and 3). The smell of alcohol, yeast or “decay,” increased numbers of fruit flies, and secondary diseases such as bacterial or fungal infections also appear during storage of asphyxiated sweetpotatoes.

Nitrogen fertilization timing and rates affect postharvest quality. While the final studies are not in yet, good cultural practices dictate the use of nitrogen fertilizers early and sparingly. Increasing yield with additional nitrogen fertilizer may result in an abundance of large, misshaped roots. Research on calcium fertilizers has also produced variable results. Some studies show a beneficial effect on skin quality and appearance, while most show no effect on quality.

Field practices control some postharvest diseases. Fusarium root rot, Fusarium surface rot, and black rot are just three diseases that start as infections in the field but develop symptoms in storage. Growers can reduce losses from these diseases by avoiding fields with a known history of disease and by using slips (plant cuttings used as transplants) that have been cut instead of pulled, which avoids transferring disease from the plant bed into the field (Figure 4). Proper curing is also essential to controlling many diseases and is discussed in the curing section on page 11.

Harvesting for Quality

Sweetpotatoes have thin, delicate skin that is easily damaged by cuts and abrasions (Figure 5). Rough handling during harvest can contribute significantly to postharvest losses. These losses result from shrinkage (weight loss), inferior appearance of the roots, and diseases that enter through damaged skin. Plowing and hand harvesting or harvesting with a mechanical digger will give satisfactory results if done carefully. Most growers harvest into either 20-bushel or 40-bushel “double” wooden bins, although some 20-bushel plastic bins are used. (See page 44 for more



Figure 5. Skinning due to abrasions incurred during postharvest handling. (PHOTO BY G. HOLMES)



Figure 6. Gentle handling during harvesting operations is critical to maintaining quality and reducing decay. (PHOTO BY G. HOLMES)



Figure 7. Bins are often slightly overfilled initially so that as roots settle, the bin's holding capacity remains maximized. However, if sufficient settling does not occur, overfilled bins will lead to tremendous injury when stacked. (PHOTO BY G. HOLMES)

details on pallet bin dimensions and capacity.) Workers should not throw or step on the roots in the bins (Figure 6). Pallet bins should never be overfilled, as this prevents proper bin stacking. Improper stacking will injure the roots, not just on top, but throughout the bin (Figure 7). Overfilling can also